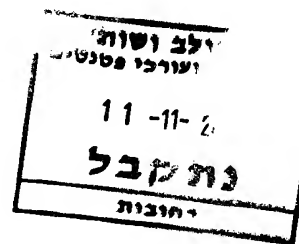# PATENT COOPERATION TREATY

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From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)

(PCT Rule 44bis.1(c))

To:

SANFORD T. COLB & CO.
P.O. Box 2273
76122 Rehovot
ISRAËL

11 -11- 2

Date of mailing *(day/month/year)* 01 November 2007 (01.11.2007)	
Applicant's or agent's file reference 56571	**IMPORTANT NOTICE**

International application No. PCT/IL2006/000453	International filing date *(day/month/year)* 10 April 2006 (10.04.2006)	Priority date *(day/month/year)* 20 April 2005 (20.04.2005)

Applicant
AXXANA (ISRAEL) LTD. et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Simin Baharlou
Facsimile No. +41 22 338 82 70	e-mail: pt09.pct@wipo.int

Form PCT/IB/326 (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 56571	FOR FURTHER ACTION	See item 4 below
International application No. PCT/IL2006/000453	International filing date *(day/month/year)* 10 April 2006 (10.04.2006)	Priority date *(day/month/year)* 20 April 2005 (20.04.2005)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant AXXANA (ISRAEL) LTD.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 10 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

   ☒ Box No. I   Basis of the report

   ☐ Box No. II   Priority

   ☐ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   ☐ Box No. IV   Lack of unity of invention

   ☒ Box No. V   Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   ☐ Box No. VI   Certain documents cited

   ☐ Box No. VII   Certain defects in the international application

   ☐ Box No. VIII   Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 23 October 2007 (23.10.2007)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Simin Baharlou
Facsimile No. +41 22 338 82 70	e-mail: pt09.pct@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: SANFORD T. COLB SANFORD T. COLB & CO. P.O. BOX 2273 REHOVOT, ISRAEL 76122	**PCT** WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43*bis*.1)

	Date of mailing (*day/month/year*)	0 9 MAR 2007

Applicant's or agent's file reference 56571	**FOR FURTHER ACTION** See paragraph 2 below

International application No. PCT/IL06/00453	International filing date *(day/month/year)* 10 April 2006 (10.04.2006)	Priority date *(day/month/year)* 20 April 2005 (20.04.2005)

International Patent Classification (IPC) or both national classification and IPC

IPC: **G06F 11/00(2007.01)**
USPC: 714/4,6

Applicant

AXXANA (ISRAEL) LTD.

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1. This opinion contains indications relating to the following items:

☒ Box No. I   Basis of the opinion

☐ Box No. II   Priority

☐ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV   Lack of unity of invention

☒ Box No. V   Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI   Certain documents cited

☐ Box No. VII   Certain defects in the international application

☐ Box No. VIII   Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis(b)* that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 06 December 2006 (06.12.2006)	Authorized officer Emerson Puente Telephone No. (571) 272-3652

Form PCT/ISA/237 (cover sheet) (April 2005)

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed

   ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

       ☐ a sequence listing

       ☐ table(s) related to the sequence listing

   b. format of material

       ☐ on paper

       ☐ in electronic form

   c. time of filing/furnishing

       ☐ contained in the international application as filed.

       ☐ filed together with the international application in electronic form.

       ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Form PCT/ISA/237(Box No. I) (April 2005)

Box No. V   Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-41	YES
	Claims NONE	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-41	NO
Industrial applicability (IA)	Claims 1-41	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:
Claims 1-5,7-10,12-33,and 34-41 lack an inventive step under PCT Article 33(3) as being obvious over US Patent No. 6,389,552 of Hamilton et al referred hereinafter "Hamilton" in view of Patent Application Publication 2003/0097607 of Bessire.

In regards to claims 1,22,23,24, and 41 Hamilton discloses:

accepting data for storage from one or more data sources (see column 2 lines 45-55)

sending the data for storage in a primary storage device and in a secondary storage device (see column 2 lines 45-55)
when an event damaging at least some of the data in the primary storage device occurs, reconstructing the data using at least part of the data stored in the secondary storage device (see column 3 lines 25-33)

However, Hamilton fails to explicitly disclose:

while awaiting an indication of successful storage of flag data in the secondary storage device, temporarily storing a record associated with the data in a disaster-proof storage unit adjacent to the primary storage device and using the record stored in the disaster proof storage unit for reconstruction during event damaging.

Bessire discloses while awaiting an indication of successful storage of flag data in the secondary storage device, temporarily storing a record associated with the data in a disaster-proof storage unit adjacent to the primary storage device and using the record stored in the disaster proof storage unit for reconstruction during event damaging (see page 3-4 paragraph 32 and 38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Hamilton and Bessire such that while awaiting an indication of successful storage of flag data in the secondary storage device, temporarily storing a record associated with the data in a disaster-proof storage unit adjacent to the primary storage device and using the record stored in the disaster proof storage unit for reconstruction during event damaging. A person of ordinary skill in the art would have been motivated to combine the teachings because Hamilton is concerned with recovering data during a disaster (see column 3 lines 53-55) and temporarily storing a record associated with the data in a disaster-proof storage unit, as per teachings of Bessire, enables recovery of data being transferred during a failure without having the data source retransmit the data (see page 4 paragraph 38).

Form PCT/ISA/237 (Supplemental Box) (April 2005)

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

In regards to claim 2, Bessire discloses:

sending an acknowledgement to the one or more data sources responsively to a successful caching of the record in the disaster-proof storage unit, without waiting to receive the indication of the successful storage of the data in the secondary storage device, so as to reduce a transaction latency associated with the storage of the data (see page 4 paragraph 38).

In regards to claim 3, Bessire discloses:

wherein temporarily storing the record comprises receiving an acknowledgement from the secondary storage device acknowledging the successful storage of the data in the secondary storage device, and deleting the record from the disaster-proof storage unit responsively to the acknowledgement (see page 4 paragraph 38).

In regards to claim 4, Bessire discloses:

wherein reconstructing the data comprises retrieving the disaster-proof storage unit following the event, extracting the record from the disaster proof storage unit and writing the data associated with the record to the secondary storage device (see page 3 paragraph 32).

In regards to claim 5, Bessire discloses:

wherein writing the data comprises remotely connecting the disaster-proof storage unit to the secondary storage device (see page 3 paragraph 32).

In regards to claim 7, Bessire discloses:

detecting the event using a detection mechanism in the disaster proof storage unit and modifying operations of the disaster proof storage unit responsive to detecting the event (see page 3 paragraph 32).

In regards to claim 8, Bessire discloses:

wherein the event comprises detecting at least one of a loss of external power supply and communication failure at the disaster proof storage unit (see page 3 paragraph 32).

In regards to claim 9, Hamilton discloses:

wherein modifying the operation comprises transmitting the record from the disaster-proof storage unit over a wireless communication link (see column 2 lines 35-40).

In regards to claim 10, Bessire discloses:

wherein temporarily storing the record comprises storing the record in two or more disaster proof storage units, wherein transmitting the record comprises transmitting two or more different parts of the record respectively from the two or more disaster proof-storage units over respective links so as to shorten transmission time of the record (see page 3 paragraph 31)
Furthermore, Hamilton discloses using a wireless link (see column 2 lines 35-40). In regards to claims 12 and 25, Hamilton discloses: sensing an environment condition using an environmental sensor, predicting the event responsively to the sensed environmental conditions (see column 3 lines 23-33).

Bessire also discloses after predicting the event, transmitting the record from the disaster-proof storage unit using at least one of a wired connection and a wireless connection (see page 3 paragraph 32).
In regards to claim 13, Hamilton discloses:
wherein sensing the environmental condition comprises accepting a manual indication from a user that indicates the event (see column 3 lines 1-15).

In regards to claim 14, Bessire discloses:

wherein temporarily storing the record comprises sending an acknowledgement message responsively to a successful storage of the record in the disaster-proof storage unit, and comprising, after predicting the event, refraining from sending subsequent acknowledgement messages so as to avoid accepting additional data from the one or more data sources (see page 4 paragraph 38).

In regards to claim 15, Hamilton discloses:

refraining from sending subsequent data for storage in primary storage device (see column 3 lines 25-33).

In regards to claim 16, Bessire discloses:

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In case the space in any of the preceding boxes is not sufficient.

after predicting the event, temporarily storing in the disaster-proof storage unit only subsequent records associated with data originating from a subset of the one or more data sources (see page 4 paragraph 38).

In regards to claim 17, Bessire discloses:

wherein temporarily storing the record comprises avoiding exceeding a memory capacity in the disaster-proof storage unit by matching the memory capacity with at least one of a maximum allowed size of data pending for acknowledgement by the second storage device and a maximum number of write commands pending for storage in the secondary storage device (see page 4 paragraph 38).

In regards to claim 18, Bessire discloses:

wherein temporarily storing the record comprises including in the record additional information related to the data, the additional information comprising at least one of an address of an originating data source, an address of the primary storage device, a time stamp indicating an acceptance time of the data and a storage address intended for the data in the primary storage device. Bessire disclose transmitting write request to storage (see page 4 paragraph 38). In order to know where in storage to write data, the data must include storage address information.

In regards to claim 19, Hamilton discloses:

accepting data for storage from one or more data sources (see column 2 lines 45-55)
sending the data for storage in a storage device (see column 2 lines 45-55)

However, Hamilton fails to disclose:

temporarily storing records associated with at least a part of the data that is relevant to investigation of disaster events using the records stored in the disaster-proof storage unit and when an event damaging at least some of the data in the storage device occurs, investigating the event.

Bessire discloses:
temporarily storing records associated with at least a part of the data that is relevant to investigation of disaster events using the records stored in the disaster-proof storage unit and when an event damaging at least some of the data in the storage device occurs, investigating the event (see page 3-4 paragraph 32 and 38)

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Hamilton and Bessire temporarily storing records associated with at least a part of the data that is relevant to investigation of disaster events using the records stored in the disaster-proof storage unit and when an event damaging at least some of the data in the storage device occurs, investigating the event (see page 3-4 paragraph 32 and 38). A person of ordinary skill in the art would have been motivated to combine the teachings because Hamilton is concerned with recovering data during a disaster (see column 3 lines 53-55) and temporarily storing a record associated with the data in a disaster-proof storage unit, as per teachings of Bessire, enables recovery of data being transferred during a failure without having the data source retransmit the data (see page 4 paragraph 38).

In regards to claim 20, Bessire discloses:

wherein the at least part of the data that is relevant to investigation of disaster events comprises at least one of surveillance images, access control information, and data originating from a telephony system. Bessire discloses storing write I/O request, indicating access control information (see page 4 paragraph 38).

In regards to claim 21, Bessire discloses:

wherein at least part of the data that is relevant to investigation of disaster of events comprises data accepted at a time immediately preceding an occurrence of the event (see page 4 paragraph 38).

In regards to claim 26, Hamilton discloses:

a disaster-proof storage unit, which comprises:

a disaster-proof enclosure, which is arranged to protect components contained therein against disaster events (see column 2 lines 45-55)

control unit, which is arranged, when an event damaging at least some of the data in the primary storage device occurs, to provide the record so as to enable reconstruction of the data using at least part of the data stored in the secondary storage device (see column 3 lines 25-33).

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In case the space in any of the preceding boxes is not sufficient.

a sensor, which is arranged to sense an environmental condition in a vicinity of the primary storage device (see column 3 lines 23-33)

However, Hamilton fails to explicitly disclose:

a memory device contained in the enclosure, which is arranged to temporarily hold a record associated with the data while awaiting an indication of successful storage of the data in the secondary storage device and using the record stored in the memory device to enable reconstruction, and a protection processor, which is arranged to predict the event responsively to the sensed environmental condition and, responsively to predicting the event, to instruct the disaster-proof storage unit to transmit the record so as to protect the data.
Bessire discloses a memory device contained in the enclosure, which is arranged to temporarily hold a record associated with the data while awaiting an indication of successful storage of the data in the secondary storage device and using the record stored in the memory device to enable reconstruction, and a protection processor, which is arranged to predict the event responsively to the sensed environmental condition and, responsively to predicting the event, to instruct the disaster-proof storage unit to transmit the record so as to protect the data (see page 3-4 paragraph 32 and 38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Hamilton and Bessire to use a memory device contained in the enclosure, which is arranged to temporarily hold a record associated with the data while awaiting an indication of successful storage of the data in the secondary storage device and using the record stored in the memory device to enable reconstruction, and a protection processor, which is arranged to predict the event responsively to the sensed environmental condition and, responsively to predicting the event, to instruct the disaster-proof storage unit to transmit the record so as to protect the data. A person of ordinary skill in the art would have been motivated to combine the teachings because Hamilton is concerned with recovering data during a disaster (see column 3 lines 53-55) and temporarily storing a record associated with the data in a disaster-proof storage unit, as per teachings of Bessire, enables recovery of data being transferred during a failure without having the data source retransmit the data (see page 4 paragraph 38).

In regards to claim 27, Bessire discloses:

wherein the control unit is arranged to delete the record from the memory device responsively to an acknowledgement from the secondary storage device acknowledging the successful storage of the data in the secondary storage device (see page 4 paragraph 38).

In regards to claim 28, Hamilton discloses:

wherein the control unit is arranged to communicate with the secondary storage device in order to provide the record so as to reconstruct the data (see column 3 lines 1-15).

In regards to claim 29, Bessire discloses:

wherein the memory device comprises at least one of a non-volatile memory and a removable memory (see page 3 paragraph 32).

In regards to claim 30, Bessire discloses:

wherein the control unit comprises a detection mechanism for detecting the event, and wherein the control unit is arranged to modify operation of the disaster-proof storage unit responsively to detecting the event (see page 3 paragraph 32).

In regards to claim 31, Bessire discloses:

wherein the detection mechanism is arranged to detect at least one of a loss of external electrical power supply and a communication failure at the disaster proof-storage unit (see page 3 paragraph 32).

In regards to claim 32, Hamilton discloses:

wherein the disaster-proof storage unit further comprises a wireless transmitter, which is arranged to transmit the record from the disaster-proof storage unit responsively to detecting the event (see column 2 lines 35-40)

In regards to claim 33, Bessire discloses:

wherein the disaster-proof storage unit is one of two or more disaster proof storage units, which are arranged to transmit respectively two or more different parts of the record over respective links so as to shorten transmission time of the record (see page 3 paragraph 31).
Furthermore, Hamilton discloses using a wireless link (see column 2 lines 35-40). In regards to claim 35, Bessire discloses:
wherein the record comprises additional information related to the data, the additional information comprising at least one of an address of an originating data source, an address of the primary storage device, a time stamp indicating an acceptance time of the data and a storage address intended for the data in the primary storage device. Bessire disclose transmitting write request to storage (see page 4 paragraph 38). In order to know where in storage to write data, the data must include storage address information.

Supplemental Box
In case the space in any of the preceding boxes is not sufficient.

In regards to claim 36, Hamilton discloses:

wherein the sensor is arranged to accept a manual indication from a user so as to predict the event (see column 3 lines 1-15).

In regards to claim 37, Bessire discloses:

wherein the data is accepted from one or more data sources, and wherein protection processor is arranged to send an acknowledgement message responsively to a successful storage of the record in the disaster-proof storage unit, and to refrain from sending subsequent acknowledgement messages so as to avoid accepting additional data from the one or more data sources (see page 4 paragraph 38).

In regards to claim 38, Bessire discloses:

wherein the data is accepted from one or more data sources, and wherein the protection processor is arranged to control a rate of the data accepted from the one or more data sources after predicting the event (see column 3 lines 25-33

In regards to claim 39, Bessire discloses:

wherein the data is accepted form one or more data sources, and wherein the protection processor is arranged to send for temporary storage in the disaster-proof storage only subsequent records associated with data originating from a subset of the one or more data sources after predicting the event (see page 4 paragraph 38).

In regards to claim 40, Bessire discloses:

wherein a capacity of the memory device is matched to a maximum allowed size of data pending for acknowledgement by the secondary storage device so as to avoid exceeding the memory capacity (see page 4 paragraph 38).

Claim 6 lacks an inventive step under PCT Article 33(3) as being obvious over Hamilton in view of Bessire and in further view of 2004/0059844 of Jones et al. referred hereinafter "Jones".

In regards to claim 6, Hamilton in view of Bessire fails to disclose:

wherein the disaster proof storage unit comprises a removable memory device for holding the record, and wherein reconstructing the data comprises when the disaster proof storage unit is damaged by the event, removing the memory device from the disaster proof storage unit and installing the memory device in another unit for readout of the record.

However, Jones discloses in the event of a failure to any portion of the module, the Removable Memory Unit is removed from the module and connected to a new module (see page 2 paragraph 11), indicating wherein the disaster proof storage unit comprises a removable memory device for holding the record, and wherein reconstructing the data comprises when the disaster proof storage unit is damaged by the event, removing the memory device from the disaster proof storage unit and installing the memory device in another unit for readout of the record.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Hamilton, Bessire, and Jones to have a removable memory device for holding the record, and wherein reconstructing the data comprises when the disaster proof storage unit is damaged by the event, removing the memory device from the disaster proof storage unit and installing the memory device in another unit for readout of the record. A person of ordinary skill in the art would have been motivated to combine the teachings because Bessire discloses a memory device for temporarily storing data for recovery (see page 3 paragraph 32), and having a removable memory device constitute a suitable memory device that enables connectable to a new module upon failure of a current module (see page 2 paragraph 11), thus enabling recovery even when there is a failure to the module.

Claims 11 and 34 lack an inventive step under PCT Article 33(3) as being obvious over Hamilton in view of Bessire and in further view of 2003/0204597 of Arakawa et al. referred hereinafter "Arakawa".

In regards to claims 11 and 34, Hamilton in view of Bessire fails to disclose:

wherein modifying the operations comprises transmitting a homing signal from the disaster proof storage unit, so as to enable location and retrieval of the disaster proof storage unit.

However, Arakawa discloses when a storage subsystem detect a failure, sending notification of the failure (see page 8 paragraph 112), indicating wherein modifying the operations comprises transmitting a homing signal from the disaster proof storage unit, so as to enable location and retrieval of the disaster proof storage unit.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Hamilton, Bessire, and Arakawa such that when a storage subsystem detect a failure, sending notification of the failure, indicating wherein modifying the

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In case the space in any of the preceding boxes is not sufficient.

operations comprises transmitting a homing signal from the disaster proof storage unit, so as to enable location and retrieval of the disaster proof storage unit. A person of ordinary skill in the
art would have been motivated to combine the teachings because Hamilton is concerned with recovering from a failure of a data storage device (see column 3 lines 23-33) and sending notification of a failure, as per teaching of Arakawa (see page 8 paragraph 112), constitute a suitable and known means to identifying a failure of the data storage device, thus enabling recovery from failure.

Claims 1-41 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.